COMBINATION OF TREADMILL AND STAIR CLIMBING MACHINE

FIELD OF THE INVENTION

The present invention relates to a combination of treadmill and stair climbing machine, and the combination requires only simple mechanism which effectively reduces manufacturing cost.

BACKGROUND OF THE INVENTION

A conventional combination "A" of treadmill and stair climbing machine is shown in Figs. 6, 6A, 6B and 6C, and generally includes a frame 50 with two posts 20 connected to two sides of a front end of the frame 50 and a U-shaped handle 30 is connected to the two posts 20. Two rollers 70 are connected to a rear end of the frame 50 and driven by a wheel 71 which is driven by a motor "C". An L-shaped plate 9 is connected to the rear end of the frame 50 and supports the shafts of the two rollers 70. Two pedals 10 respectively connected to the two rollers 70 and each pedals 10 has a running belt "B" reeving the roller 70 and a front end of the pedal 10. Two hydraulic cylinders 40 are respectively connected between the two pedals 10 and two connection ports 41 on the two posts 20. Each pedal 10 has an extension 8 connected to an underside thereof and a swing mechanism 80 is connected to the two pedals 10 so that when the combination is set to be a stair climbing machine as shown in Fig. 6A, the two pedals 10 can be alternately stepped downward at the front end thereof. A T-shaped switch member 1 is connected to the front end of the frame 50 and one of two ends of its transverse bar is pivotably connected to a link 3 which is connected to a support frame 4 on which two support pieces 5 are located. Two springs 6 are respectively

connected between the two support pieces 5 and the frame 50. Each extension 8 has a block 7 connected to a distal end thereof so that when operating the T-shaped switch member 1 to the position as shown in Fig. 6, the blocks 7 are supported on the support pieces 5. At this position, the two pedals 10 cannot be pivoted about the rollers 70 and are used as a treadmill.

It is noticed that the structure for transferring the treadmill and stair climbing machine, including the T-shaped switch member 1, the link 3, the support frame 4, the support pieces 5, the blocks 7, and the extensions 8, is too complicated and costly. Besides, the two pedals 10 are supported by the rollers 70 which are easily to be off-centered and this could damage the motor "C".

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention, there is provided a combination of treadmill and stair climbing machine, and the combination comprises a frame with two posts extending from two sides thereof and a handle is connected between the two posts. Two hydraulic cylinders are connected to the posts and two pedals. Two lugs are connected on the two sides of a rear end of the frame and a roller is connected between the two lugs. A wheel is connected to the roller and driven by a motor.

The two pedals each have a connection plate on a side thereof and the two connection plates are connected to the lugs. Each pedal includes a running belt which reeves through the roller and a front end of each pedal. A switch member is pivotably connected to a U-shaped frame connected to the front end of the frame and the switch member can be optionally positioned at a horizontal

position when the two pedals are used as stair climbing machine, and an inclined position when the two pedals are used as a treadmill. A first spring is connected between an underside of the switch member and the frame. A swing mechanism is pivotably connected to the frame and the two pedals.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view to show the combination of treadmill and stair climbing machine of the present invention;

Fig. 2 is a perspective view, viewed from a front end of the combination of treadmill and stair climbing machine of the present invention;

Fig. 3 shows the frame, the roller and the switch member on the frame of the present invention;

Fig. 3A shows the roller and the shaft in the roller;

Figs. 3B and 3C show the protrusions on the L-shaped plate movably engaged with elongate holes in the connection plates of the pedals;

Fig. 4 shows the structure of the switch member and the U-shaped frame;

Fig. 4A shows the pin on the handle is inserted in the hole of the switch member;

Fig. 4B shows the combination is set as a treadmill;

Fig. 4C shows the swing mechanism connected to the two pedals;

Fig. 5 shows the combination is set as a stair climbing machine;

Fig. 5A shows the switch member is set when the combination is set as a stair climbing machine;

Fig. 5B shows that the combination is set as a stair climbing machine;

Fig. 5C shows that the swing mechanism is operated when combination is set as a stair climbing machine;

Fig. 6 is a side view to show a conventional combination of treadmill and stair climbing machine;

Fig. 6A and 6B shows the frame and the two rollers of the conventional combination, and

Fig. 6C shows the rear end view of the two rollers of the conventional combination.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figs. 1, 2, 3 and 3A, the combination "A" of treadmill and stair climbing machine of the present invention comprises a frame 50 with two posts 20 extending from two sides of a front end of the frame 50 and a handle 30 is connected between the two posts 20. Two lugs 54 are connected on the two sides of a rear end of the frame 50 and a roller 70 with a shaft 701 therein is connected between the two lugs 54. A wheel 71 is connected to the roller 70 and driven by a motor "C". An L-shaped plate 53 is connected to a transverse bar 53 of the frame 50 and two protrusions (Figs. 3B and 3C) extending from each of two sides thereof.

Two pedals 10 each have a connection plate 12 on a side thereof and the two connection plates 12 are connected to the lugs 54. Two hydraulic cylinders 40 are respectively connected between the two posts 20 and the two pedals 10. Each pedal 10 includes a running belt "B" which reeves through the roller 70 and a front end of each pedal 10. Each pedal 10 has a connection plate 90 which has two elongate holes 91 and the two protrusions 5310 are movably engaged with the two elongate holes 91 of each connection plate 90 as shown in Figs. 3B and 3C when the pedals 10 are set in different function positions.

A switch member 61 is pivotably connected to a U-shaped frame 60 connected to a transverse bar 51 of the front end of the frame 50. The switch member 61 can be positioned at a horizontal position when the two pedals 10 are used as stair climbing machine, and an inclined position when the two pedals 10 are used as a treadmill. A first spring 66 is connected between an underside of the switch member 61 and the frame 50.

Further referring to Figs. 4, 4A, 5, and 5A, a sub-frame 602 is connected to a side of one of two side plates of the U-shaped frame 60 and a handle 63 having a cam head is pivotably connected to a pin 64 which extends through the sub-frame 602 and a first hole 601 defined through the side plate of the U-shaped frame 60. A second spring 65 is mounted to the pin 64 and biased between the side plate of the U-shaped frame 60 and the sub-frame. The switch member 61 has an extension which has a second hole 611 defined therethrough, so that the pin 64 can be inserted in the second hole 611 when the switch member 611 is set in the inclined position as shown in Figs. 4, 4A and 4B. Each pedal 10 includes a tongue

11 on an underside thereof and the support member 10 includes a block 62 on a top thereof. Each tongue 11 includes an inclined side which is rested on a top of the block 62 when the switch member 61 is set in the inclined position.

As shown in Figs. 5, 5A and 5B, when the handle 63 are pivoted to pull the pin 64 from the second hole 611 in the switch member 61, and the switch member 61 is pivoted to horizontal position, the spring 66 holds the switch member 61.

Further referring to Fig. 4C, a swing mechanism 80 is pivotably connected to the frame 50 and the two pedals 10 so as to allow the two pedals 10 to be operated as a stair climbing machine. As shown in Fig. 5C, the swing mechanism 80 includes a main link 81 which has a intermediate point pivotably connected to a transverse bar 52 of the frame 50 and two sub-links 82 are respectively connected between the two ends of the main link 81 and two respective plates 83 connected to the two pedals 10.

The load of the pedals 10 are supported on the shaft 701 of the roller 70 and there is only one roller 70 so that the shortcoming of the conventional combination is improved. The operation of the switch member 61 is convenient to set the pedals 10 to be treadmill or stair climbing machine.

While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.